

Remarks

Applicant has carefully considered the office action mailed March 24, 2009, and the subsequent notice of non-compliant amendments, and submits the foregoing amendments and the following remarks.

Rejection of claims 12-25, 29, and 30 for obviousness over APA in view of Chu, Cosyns, and O'Rear

The examiner rejected claims 12-25, 29, and 30 as obvious under 35 U.S.C. § 103 over "Applicants' admitted prior art" (APA) in view of U.S. Patent No. 4,471,145 to Chu et al. ("Chu"), U.S. Patent No. 4,471,145 to Cosyns, et al ("Cosyns"), and U.S. Patent No. 6,392,108 to O'Rear ("O'Rear").

Response

The new claims all specify:

supplying fuel comprising Fischer-Tropsch derived fuel **comprising Fischer-Tropsch product having a density of between 0.65 and 0.8 g/cm³ at 15 °C** to an evaporation surface of the evaporator burner oven.

Claims 31-52.

As explained in the specification, "[a]s a result of the low contents of aromatics and naphthenics compounds the density of the Fischer-Tropsch [derived] product will be lower than the conventional mineral derived fuels." Specification, ¶ [0013]. See also Table 1, Specification ¶ [0021] (Fischer-Tropsch kerosene density at 15 °C, 734.8 g/cm³; "Norway Kero" density, 810 g/cm³). Persons of ordinary skill in the art would understand that a lower density Fischer-Tropsch derived fuel product would have different evaporation properties than a comparable higher density petroleum derived fuel. See Exhibit A (Wikipedia excerpt). See also Wuest. Additional evaporative differences could be expected due to the differences in the fuel composition. *Id.*

Wuest explains that:

With kerosene or petroleum as fuel, it is possible, during burner start-up, to heat the kerosene or petroleum to the vaporization temperature in the vaporizing chamber by means of an electric heating device, but to subsequently switch off the electric heating device when the heating device together with the burner has been heated up to such an extent that the vaporization of the kerosene or

petroleum is maintained by the sensible heat of the heating device. **With extra light heating oil, however, continuous operation of the electric heating device is necessary on account of the much higher vaporization temperature with this fuel.**

Wuest, col. 1, ll. 51-62 (emphasis added). Wuest attempts to solve this problem by modifying the evaporation burner. According to Wuest, when his burner is used to burn "extra light heating oil," "the vaporizing chamber has to be heated . . . only during the starting phase when the burner is cold, whereas the supply of external energy for heating the fuel is unnecessary during the subsequent operation of the burner." Wuest, col. 2, ll. 19-24.

Particularly in domestic heating applications, it would inefficient, and might not be possible to modify or update existing vaporizer burners to use a burner such as Wuest's. Rather than changing the burner, the present application supplies fuel comprising lower density Fischer-Tropsch derived fuel to the vaporizer burner. Applicant's data demonstrates burning a fuel comprising a Fischer-Tropsch derived kerosene in a "Jotul 709 Oven (as manufactured by Jotul ASA in Norway) for 90 minutes" produced improvements "compared to burning petroleum derived kerosene in the same oven." Example 1, Specification, ¶¶ [0021] -[0026] .

The examiner cannot establish that supplying the claimed fuel to an evaporator burner oven was "the **predictable use of prior art elements according to their established functions.**" *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. ____ 398, 127 S.Ct. 1727, 82 U.S.P.Q.2d 1385, 1396 (U.S. 2007) (emphasis added). Nor can the examiner established an apparent reason to combine known elements **in the fashion claimed.** *Id.*

The examiner argues that Corsyns states that "a liquid fuel derived from Fischer-Tropsch synthesis process has the same use as oil." Office action, p. 3. The foregoing is not a teaching or suggestion to supply a fuel comprising Fischer-Tropsch derived fuel to any particular burner, much less to an evaporator burner oven. As seen from the foregoing discussion, particularly from the teachings in Wuest, the examiner cannot establish an apparent reason to combine known elements **in the fashion claimed.** *Id.* (emphasis added).

The examiner also argues that O'Rear states that "Fischer-Tropsch derived fuels have very low levels of sulfur and nitrogen, have excellent burning properties, and can be used as an environmentally friendly 'green fuel.'" Office action, pp. 3-4. The foregoing is not a teaching or suggestion to supply a fuel comprising Fischer-Tropsch derived fuel to any particular burner, much less to an evaporator burner oven. As seen from the foregoing discussion, particularly from the teachings in Wuest, the examiner cannot establish an apparent reason to combine known elements **in the fashion claimed**. *Id.* (emphasis added).

The examiner clearly cannot establish a reasonable expectation that supplying the claimed fuel comprising Fischer-Tropsch derived fuel to an evaporator burner oven could produce "increased efficiency compared to combusting a petroleum derived kerosene fuel under the same conditions using the same burner." Claims 20 and 31. Nor can the examiner establish a reasonable expectation that, compared to combusting a petroleum derived kerosene fuel under the same conditions using the same burner, supplying the claimed fuel comprising Fischer-Tropsch derived fuel to an evaporator burner oven could produce: a reduced unburned hydrocarbon content; reduced carbon monoxide emissions; and/or a reduced Smoke Number. Claims 15-19 and 32-34.

Applicant respectfully requests that the new claims be entered and that the rejection be withdrawn.

Rejection of Claims 26 and 28

The examiner rejected claim 26 as obvious over APA, Chu, Cosyns, O'Rear, and further in view of U.S. Patent No. 3,607,074 to Brown et al. The examiner also rejected claim 28 as obvious over APA, Chu, Cosyns, O'Rear and further in view of U.S. Patent No. 4,932,979 to Thrasher et al.

Response

Claims 26 and 28 have been canceled. Applicant respectfully requests entry and allowance of the new claims for all of the reasons discussed above.

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**Rejection of claims 12 and 27 as obvious over
Wuest in view of Chu, Cosyns, and O'Rear**

The examiner also rejected claims 12 and 27 as obvious over U.S. Patent No. 6,540,505 to Wuest ("Wuest") in view of Chu, Cosyns and O'Rear.

Response

Claims 12 and 27 are canceled.

The discussion above applies equally to this rejection. For all of the foregoing reasons, the examiner cannot establish a *prima facie* case of obviousness of any of the new claims over Wuest, Chu, Cosyns and O'Rear.

Applicant respectfully requests entry and allowance of the new claims for the reasons discussed above.

CONCLUSION

For all of the foregoing reasons, Applicant respectfully requests entry and allowance of the new claims. The examiner is hereby authorized to charge any fees, and to deposit any overpayment of fees, to Deposit Account No. 19-1800 (File no. TS8579), maintained by Shell Oil Company

Respectfully submitted,


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